

**ABSTRACT OF THE DISCLOSURE**

A distributed parity technique organizes and distributes parity blocks among storage devices of an array coupled to a storage system. The array illustratively comprises a plurality of disks, each of which is divided into blocks of fixed size. The blocks are then  
5 organized into stripes, wherein each stripe contains one disk that holds only row parity blocks, another disk that holds only diagonal parity blocks and the remaining disks that hold data blocks. The number of blocks on each disk of each stripe is initially equal such that an even disk length arises within each stripe. Thereafter, an extra parity block is appended to the end of the disk holding the diagonal parity blocks within each stripe. Each  
10 block of the array is assigned to two parity sets and any one or any combination of two disks can fail concurrently and the data on the failed disks can be reconstructed.